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AUTHOR Collins, Raymond C.; Kinney, Patricia F.
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ABSTRACT

One of a series of technical papers prepared for the advisory panel of the Head Start Evaluation Design Project, this paper presents information about national Head Start goals, program participants, and the Head Start delivery system. The four stages of Head Start's evolution are described in terms of changes in the characteristics of participants, the delivery system, program strategy, and the evolution of quality controls. Outcome measures for children and families are discussed, and major research and evaluation efforts are summarized. Other research-oriented preschool programs outlined include the Consortium for Longitudinal Studies, the Perry Preschool Project, the Syracuse Study, and the Abecedarian Project. Implications for Head Start are highlighted for these and other early intervention efforts. The paper presents models that might account for salient outcomes and discusses demographic and societal trends which affect Head Start research and evaluation design. It is argued that the design of strategic evaluation options for Head Start must take into account a paradigm shift in early childhood research over the past generation. Concluding material covers increased policy interest in preschool education and child care at federal, state, and local levels. Nearly 90 references are cited. (RH)

HEAD START RESEARCH AND EVALUATION: BACKGROUND AND OVERVIEW

November 1988

Technical Paper Prepared for the
Head Start Evaluation Design Project

Project Director: Raymond C. Collins, Ph.D.
Deputy Project Director: Patricia F. Kinney, Ph.D.

Collins Management Consulting, Inc.
415 Church Street NE, Suite 101
Vienna, VA 22180
(703) 938-6555

Government Project Officer: Dr. Esther Kresh
Department of Health and Human Services
Office of Human Development Services
Administration for Children, Youth and Families
Evaluation Unit
Room 2420
330 C Street, S. W.
Washington, D. C. 20201

(202) 245-0115

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Executive Summary

This report is one of a series of technical papers prepared for the advisory panel of the Head Start Evaluation Design Project. The project is a twelve month planning effort being administered by Collins Management Consulting, Inc., under contract to the Administration for Children, Youth and Families.

This paper presents information about the national Head Start program, including a description of Head Start goals, program participants and the Head Start delivery system. The four stages of Head Start's evolution are described in terms of changes in the characteristics of participants, delivery system, program strategy and the evolution of quality controls. Outcome measures for children and families are discussed. Major research and evaluation efforts are summarized.

Other research-oriented preschool programs are outlined, including the Consortium for Longitudinal Studies, the Perry Preschool Project, the Syracuse Study and the Abecedarian Project. Implications for Head Start are highlighted for these and other early intervention efforts.

The paper presents possible explanatory models that might account for salient outcomes and discusses current demographic and societal trends which affect Head Start research and evaluation design. The report concludes with a discussion of increased policy interest in preschool education and child care at Federal, state and local levels.

I. BACKGROUND

Program Goals

As set forth in the Head Start Program Performance Standards: "The overall goal of the Head Start program is to bring about a greater degree of social competence in children of low income families. By social competence is meant the child's everyday effectiveness in dealing with both present environment and later responsibilities in school and life. Social competence takes into account the interrelatedness of cognitive and intellectual development, physical and mental health, nutritional needs, and other factors that enable a child to function optimally. The Head Start program is a comprehensive developmental approach to helping children achieve social competence."

Head Start's primary goal is promoting the child's social competence. Subsequent discussion in the performance standards policy issuance clarifies that Head Start's interpretation of social competence places the child in the context of the family and that the program incorporates a *significant corollary goal of strengthening the family.*

The program performance standards are characterized as reflecting the basic components and activities "necessary and required to attain those objectives." The 1975 statement of goals, objectives and program standards has not been modified in any fundamental respect since its promulgation. It remains Head Start's official position today. ACYF is currently in the process of revising the performance standards; however, the proposed changes focus on optimal program and administrative strategies for achieving existing goals and objectives and do not represent an attempt to modify Head Start's goals.

Head Start Participants, Program Strategy and Delivery System

Head Start provides comprehensive developmental services focused on preschool children of low income families. The performance standards require that all Head Start programs provide education, parent involvement, social services and health services (medical, dental, mental health and nutrition). Head Start regulations allow up to ten percent of Head Start participants to be from families that do not meet the poverty criteria. Head Start mandates that a minimum of ten percent of enrollment opportunities in each State be made available to handicapped children. In practice, over 13 percent of Head Start enrollment consists of children professionally diagnosed as having one or more handicapping conditions -- mental retardation, health impairments, visual handicaps, hearing impairments, emotional disturbance, speech and language impairments, orthopedic handicaps and learning disabilities. Handicapped children are expected to receive the full range of Head Start services, as well as necessary special education and related services, and to participate in a program setting with their non-handicapped peers.

The modal age of Head Start children is four years old. The age distribution is as follows:

Age	**%**
5 year-olds and older	10
4 year-olds	62
3 year-olds	25
Under 3 years of age	3

Head Start is responsive to its mandate to reach out to high risk families. Participants include high proportions of single parent families, families on welfare, families with very low incomes, young parents and minorities. A single parent heads 54 percent of Head Start families. Forty seven percent of the families are on AFDC. Fifty one percent of the families have an income below $6,000. Sixty two percent of Head Start parents are between 20-29 years old. Approximately two thirds of the families are minorities. The racial-ethnic composition (of enrolled children) is as follows:

Race-Ethnicity	**%**
American Indian	4
Hispanic	22
Black	38
White	33
Asian	3

Head Start's delivery system serves approximately 450,000 children through a geographically dispersed and diverse nationwide network of community agencies. There are over 1,900 programs (approximately 1,300 grantees and 600 delegate agencies, including 36 Parent Child Centers that provide services from the prenatal period through age three). These programs are located in every State and in all counties with substantial low income populations. Grantees include public and private agencies, community action agencies, school systems, non-profit organizations, and Indian Tribes. Grants are administered through ten HHS Regional Offices and the Indian and Migrant Program Branches in the Head Start Bureau. Grants are awarded directly from the Federal government to the local agency, generally with minimal involvement of the State (State activities are described below).

Program component services as specified in the performance standards establish basic quality criteria to which all Head Start programs are required to adhere. Subject to the mandates in the standards, local programs are permitted and encouraged to tailor program services to the specific needs, resources and priorities of their communities as well as to individualize services for each child and family. Grantees and delegate agencies enjoy broad flexibility in program design, choice of curriculum, hours of operation, selection of staff, types of parent involvement, linkages with other agencies to coordinate services, and training and technical assistance arrangements.

Summer programs were phased out in the aftermath of the Westinghouse study (virtually the only finding of the Westinghouse evaluation that elicited a consensus was the report that year long programs are vastly more effective than summer programs). However, broad discretion is permitted local programs in the length and type of service they offer (with programs allowed to operate 8-12 months out of the year).

Head Start programs can operate one or more of five program options:

- Standard Head Start operates for five days per week and can be part day or full day;
- Variations in Center Attendance operate for four days or less per week;
- Double sessions operate with a teacher who works with two groups of children, one in the morning and one in the afternoon;
- Home-based programs provide weekly home visits to the child's parents and have an organized socialization experience for a small group of children approximately once each month and
- Locally designed options are programs designed to meet the unique needs of the local community and require special approval from ACYF.

In recent years the Head Start Bureau has undertaken a searching analysis of program strategy and administration. Three major proposals for regulatory change have emerged (see Federal Register references in the bibliography). One proposes revisions to the Head Start Grant Application Instructions and Forms. A second proposes Performance Standards for Services for Children with Handicaps in Head Start Programs. A third proposes Regulations Governing Head Start Staff Requirements and Program Options. The latter two, assuming they are officially disseminated in some version, are of direct relevance to Head Start research and evaluation design.

The third proposal to modify staff requirements and program options is of particular interest since its express purpose is to insure that "Head Start programs maintain levels of quality that will continue to promote long range benefits to children and families." The proposal is based upon an analysis of research as well as "best practices" in early childhood education. The notice of proposed rulemaking proposes new requirements regarding program staffing and options, including staffing patterns, staff qualifications (centered on CDA, the Child Development Associate), staff and volunteer training, hours and days of operation and class size. The assumption is that these variables directly affect both program quality and cost.

Head Start's Stages of Evolution

A prerequisite to interpreting Head Start research findings is an understanding of the stages of evolution of the Head Start program. Four stages have been identified (Collins, 1981).

Stage I is the period of program start-up from 1965 to 1968. This stage was marked by rapid operational implementation. Head Start was launched with a bang in the summer of 1965, serving 561,000 children in 2,400 communities. The program operated 6-8 weeks in the summer. The principal grantees were the newly formed community action agencies and public schools, which mobilized empty classrooms and teachers on summer vacation. Full year programs were launched on a small scale in 1965-1966; but many such programs in practice only operated 4-6 months out of the year (Datta, 1969). Implementation difficulties, lack of suitable space, funding uncertainties and shortages of trained staff plagued the start-up years.

Stage II is the period of transition from 1969-1972. This stage began with the Westinghouse study and the spin-off of Head Start from OEO to HEW. Head Start was converted from a summer to a full year program, although full year was still a flexible concept. Guidelines regarding parent involvement were strengthened, particularly emphasizing parents' participation on policy boards and as paid staff and as volunteers. Career development and training and technical assistance were accorded high priority. As relatively fewer Head Start programs were managed by the public schools, fewer staff had bachelors or other advanced degrees. A higher proportion of participanting children were from multiproblem families. In summary, program, staff, child and family variables underwent significant changes in areas associated with differential outcomes. Salient variables included parent participation, duration of program, staff characteristics (level of general education, specific training in early childhood education and age), and child and family background characteristics (age, race-ethnicity, prior preschool experience, father presence, family SES and mother's employment).

ACYF's leadership set out to counter the misconception that Head Start was narrowly targeted on increasing the poor and minority child's IQ. Th' was a common interpretation which stemmed from the Westinghouse study (Cicirelli, et al., 1969; Campbell and Erlebacher, 1970). This misunderstanding and the concomitant view that Head Start had failed to meet its goal threatened the very existence of the program.

Stage III is the period of Head Start Improvement and Innovation from 1972-1977. In 1972, under the leadership of Dr. Edward Zigler, a multi-year plan was developed to introduce innovations and upgrade program quality in Head Start. ACYF's planners sought to effect a Head Start renaissance within the mainstream of the program's evolution. They augmented the blueprint of the original Head Start planning group (Cooke, 1972; Zigler, 1973; Zigler and Valentine, 1979; Collins, 1981). From the outset, Head Start was designed to attain the dual goals of child and family development. The thrust of the I&I effort was to specify those objectives in operational terms and to develop program and management strategies at the local and Federal levels to achieve those priority goals.

This period of Head Start renaissance witnessed the development of the performance standards and program options, large scale services to handicapped children, initiation of CDA, and launching of numerous R&D projects, including Home Start, the Child and Family Resource Program and Project Developmental Continuity. The program performance standards

represented a reaffirmation of the wisdom of the initial recommendations of the panel of experts, amplified to take into account nearly a decade of Head Start operational experience and the insights from early intervention research during the ensuing period. Monitoring and quality control tools were developed, characterized by annual local program self-assessment. Regional Office stewardship in the form of on-site validation team visits on a three-year cycle and other accountability procedures.

The trend of changing characteristics of Head Start programs and participants begun in Stage II accelerated in Stage III, (most visibly marked by the popularity of home-based programs and the mainstreaming of handicapped children). Participation of children with disabilities quickly exceeded the ten percent legislative mandate. The program design developed in Stage III established the essential features of today's Head Start.

Stage IV is the period of program expansion from 1978 to the present. In FY 1978, the Congress increased the Head Start budget by $150 million, nearly a one third funding expansion. This marked a conscious reversal of the previous policy of holding program enrollment on a no-growth plateau since Head Start's heady start-up years. After an initial period of operational adjustment, Head Start was able to serve 400,000 children and their families -- one fifth of the eligible population. This pattern of increasing Head Start's budget, begun under the administration of President Jimmy Carter, was continued in a bipartisan spirit by President Ronald Reagan. President George Bush supported the largest expansion of all in asking the Congress for an increase of $250 million for FY 1990, which would raise Head Start funding to $1,485,000,000.

The pattern of program and participant change has continued. Greater numbers of handicapped children are being served; in 1986, 99 percent of Head Start programs enrolled children with disabilities (HHS, 1987). The proportion of high risk families has greatly increased, in part a tribute to more aggressive recruitment efforts in low income neighborhoods and in part a natural consequence of worsening demographic and economic factors impacting on poor and minority families. Home-based services have continued to expand, reaching over 500 programs by 1988 (ACYF, 1989).

Despite major increases in program funding, resources for training and technical assistance have remained constant since 1978. Funding of research and evaluation has markedly declined, although there have been encouraging increases in Head Start evaluation activity during the past year. The Head Start Bureau is also implementing the Comprehensive Child Development Act of 1988. The CCDP is a demonstration program with the objective of providing intensive, comprehensive, integrated and continuous support services to low income children from birth to entrance into elementary school (Federal Register, December 29, 1988).

The above overview, albeit brief, illustrates the point that Head Start has not only been marked by diversity at any point in time, but it has experienced an ongoing evolution on salient program, child and family variables believed to be associated with important child and family outcomes. This point is essential for

interpreting past Head Start research and evaluation studies and should be kept in mind in the design of future evaluation options.

Specification of Program Outcomes

1. Social Competence. In 1972, the Head Start Bureau and ACYF's evaluation unit launched a series of efforts to specify the child goals and measures associated with social competence. In research terminology, the program standards were conceptualized as specifying the independent variables of program "treatment" (at least defining program services more concretely and completely than in Head Start's start-up years). Social competence was viewed as specifying the dependent variables of program outcomes for children.

ETS and Rand were central to the early efforts to pin down the social competence construct (Anderson and Messick, 1974; Raizen, et al., 1974). Other studies of Head Start and child care during the period contributed to the effort to identify appropriate measures of social competence; although not all such efforts used the term, the concept of global measures of child development was catching on (Love, et al., 1975; Stallings, et al., 1976; Thompson, et al., 1976).

A multiyear project organized by Mediax Associates, Inc., was the next phase of ACYF's efforts to develop a relevant battery of evaluation measures for Head Start (Mediax Associates, Inc., 1980). The Mediax project began on a sound footing by obtaining input from parents, teachers, scholars and the Head Start community and by conducting state-of-the-art reviews. Some of the monographs are of contemporary interest and utility, such as the analysis of measures of socioemotional development (Katz and Jacobson, 1978).

The Head Start Measures Project, implemented by the University of Arizona with funding support from ACYF, was an outgrowth of the Mediax effort and became the next step in the effort to develop evaluation outcome instruments tailored to Head Start (Bergan, et al., 1984 and 1985). A "path referenced" approach to assessment, the Head Start Measures Battery (HSMB) provides for assessment in six areas: Language, Math, Nature and Science, Perception, Reading and Social Development. During 1984-1985, the HSMB was implemented in Head Start with nearly 16,000 children in 179 participating Head Start programs. Developmental work on the HSMB has continued.

In addition to ACYF sponsored initiatives, the academic and policy communities have begun to seriously consider the concept of social competency. Zigler and Trickett (1978) have argued the advantages of social competence over IQ in the evaluation of early intervention programs, making the case for what they call "long term molar measures." These molar measures include such real world longitudinal outcomes as moderating the incidence of juvenile delinquency, teenage pregnancy, and school dropout among high risk populations of young people.

The success of the Perry Preschool Project and other research-oriented early intervention programs in demonstrating exactly such long-term benefits has sparked the interest of political and business leaders as well as child advocates

in new ways of "keeping score" within the spirit of social competence (Berrueta-Clement, et al., 1984).

2. Parent and Family Outcomes. Unlike the concerted effort to develop and utilize innovative children's measures, no parallel initiative has been launched by ACYF to develop parent or family outcomes. The Head Start Synthesis Project is the best source for identifying those relatively few studies that include family impact information, almost none of which involve the use of innovative or creative measures (McKey, et al., 1985). Somewhat more has been done in the broader child development world, particularly in research on the dimensions of child care quality which sometimes includes new measures of parental and family benefits, although generally not as a dominant focus (see, for example, Phillips, et al., 1987).

For insights on parental and family outcomes, it is necessary to turn to exemplary programs, guidance materials and program standards. NAEYC's Accreditation Criteria represents one authoritative and widely acclaimed source of good program practice which is beginning to influence Head Start program policy and operations (Bredekamp, 1987). Head Start has had a proud record of strengthening families in such areas as parent involvement, career development, adult education, employment, and the Child Development Associate (CDA) and other training initiatives, although these accomplishments are known primarily through anecdotal information (Collins, 1981 and 1984; O'Keefe, 1979; Williams, 1983). Head Start has inspired other early childhood programs to strengthen families (Weiss, et al., 1988). Welfare reform efforts under the Family Assistance Act offer a new arena for assessing Head Start's program effects particularly since the legislation will require substantial increases in the number of programs for young children.

II. OVERVIEW OF HEAD START RESEARCH AND EVALUATION

Evaluation and Research Centers

From its inception, Head Start has placed considerable priority on research and evaluation as part of an ongoing process of program development and innovation. Over 1,600 research reports have been compiled on Head Start programs (McKey, 1985). With the exception of the Westinghouse evaluation, little attention has been paid to this valuable reservoir of scientific evidence.

A network of fourteen university-based Evaluation and Research (E&R) centers collected information on Head Start during the period 1966-1969. The research paradigm focused on comparing "regular" Head Start classes with "intervention classes" (System Development Corporation, 1972; Research Triangle Institute, 1972; Datta, et al., 1976). Significant findings were as follows:

- Children with prior Head Start experience received higher scores on school readiness and intelligence. The greatest change occurred in the first year of the program, although there was cumulative improvement in year two;

- Within the span of the yearly program, gains were cumulative;

- Pre-post performance measures showed gains on all cognitive measures beyond levels that would be expected for maturation;

- Program characteristics associated with gains on preschool achievement were in classes where the teacher was older; the teacher had less formal education and experience; the teacher did not use physical control; there was emphasis on independence and self-care; there was high emphasis on "structured" lessons; there was ample large muscle equipment available but not excessively used; and there was high emphasis on art activities;

- Family background characteristics strongly associated with higher levels of cognitive performance included the nature of the parent child relationship; only infrequent parental use of physical punishment; and the quality of the child's relationship in the family;

- Teacher characteristics and behaviors were the major determinants of child social adjustment;

- Younger children improved most in social development; and

- A low child-caregiver ratio was associated with cognitive and social gains on some measures and for some groups of children.

The principal conclusion of that body of research can be summed up in the finding that there was "no one best program or curriculum approach for all children; program approaches should be matched to the child and the teacher." The interaction between teacher characteristics and child and family characteristics was seen as pivotal. The researchers endorsed initiatives to upgrade teacher competencies, such as CDA, and called for targeted research into teachers' skills and attributes and into the role of the family in facilitating the child's educational and social performance.

The research emanating from the E&R centers appeared suited to the program needs of Head Start at the time. Nevertheless, that approach was abandoned towards the end of Stage I and its more promising aspects have never been pursued. A central reason was that research coming out of the E&R centers was not well designed for shedding light on policy questions, particularly on the overall effectiveness of Head Start. No comparison groups were included of children who did not participate in preschool. Furthermore, the network of 14 E&R centers lacked an integrated research strategy centered on priority policy or program issues.

The compensating strength of the E&R studies, it should be emphasized, was a clear focus on the fine grained details of what program variables elicited what outcomes in Head Start participants. Unlike the Westinghouse study, the E&R centers probed inside the "black box" paradigm that later came to mark so much education and child development research and which assumed a monolithic program "treatment."

The Westinghouse Study

The Westinghouse Learning Corporation-Ohio University Evaluation, popularly known as the Westinghouse study, was long regarded as the classic study of Head Start. The purpose of the study was to address a limited question concerning Head Start's impact; namely: "Taking the program as a whole as it has operated to date, to what degree has it had psychological and intellectual impact on children that has persisted into the primary grades?" (Cicirelli, et al., 1969). The study compared children who had attended Head Start any time during the period summer 1965 to spring 1968 and who were in first, second or third grade at the time of the study with "comparable" children who did not attend Head Start.

During summer and fall 1968, standardized tests were given to children in a random sample of 104 centers nationwide. The sample included 75 summer centers and only 29 full year centers (at that time, the summer program accounted for 70 percent of Head Start participants). In addition to child testing, parents and teachers supplied information through interviews and rating scales. Since the socioeconomic status of the Head Start participants was known to be substantially lower than the comparison group, an attempt was made to adjust statistically through the use of covariance analysis for the initial population differences.

The findings differed substantially for summer and full year programs. Summer programs had no lasting impact. It should be noted parenthetically that reanalyses using different techniques have shown that summer programs exert positive effects for some children, offset by negative effects for other children. Since Head Start no longer provides summer services, research on summer programs will not be further discussed.

Full year programs stimulated cognitive and language gains at the first grade level, but comparison children had "caught up" by second or third grade (Head Start children did, however, show statistically significant gains on two subtests at grade two). This is sometimes described as the fade out or leveling off of Head Start gains.

Particularly noteworthy were gains for black children and for children attending Head Start in central cities and in the Southeast. Head Start children in those groups approached national norms on school readiness as measured by the Metropolitan Readiness Tests (MRT) in first grade. They were behind about six-tenths of a year in second grade.

The Westinghouse study dismissed even the favorable results for full year programs as not being of practical relevance and not worth the program effort. This interpretation was presumably based on the arbitrary standard that intervention programs should generate gains of one-half a standard deviation on standardized tests (0.5 SD). MRT gains were "only" 0.2 SD. (Note: The standard deviation is a way of describing the distribution of test scores around the mean. Two-thirds of the children's scores fall within plus or minus 1.0 SD of the mean. Early childhood researchers who have subscribed to the notion of threshold gains expressed in terms of the standard deviation have tended to

favor 0.25 SD. Few researchers have endorsed 0.5 SD as a reasonable criterion.)

The Westinghouse study dominated the public policy debate about Head Start and early intervention. Endorsement of the study's findings and policy conclusions implies acceptance of the following assumptions (Collins, 1981): (a) the sample of centers and families is representative of the total Head Start population; (b) the children and families in the comparison group are truly comparable, or sufficiently so that statistical techniques can adjust for known differences; (c) the gains found are indeed not of practical importance; (d) tests and measures are tapping the "real" condition of the children; (e) the relative status of the children is indicative of Head Start program effects and not other environmental circumstances at home or school; (f) the findings are consistent with child development theory and are supported by the preponderance of other data; and (g) essential features of Head Start and the population served remained unchanged during the 1965-1968 period, and by implication, reflect the ongoing Head Start program.

The Westinghouse evaluation has been severely criticized on each of these assumptions. Perhaps the most telling critique is that of Campbell and Erlebacher (1970). They point out that Head Start was targeted on the "most disadvantaged" children. The comparison group was selected from children in the same locale who did not participate in Head Start (and presumably were not in some other preschool program). The presumption is that the comparison group will be "less disadvantaged," and this proved to be the case in this study and in virtually all later research that followed similar methodological approaches for selecting a comparison group. Campbell and Erlebacher argued persuasively that this resulted in systematic biases in the direction of making the compensatory program look ineffective. They further claimed that statistical adjustment techniques used by Cicirelli and his colleagues were inherently incapable of totally removing such bias. An indeterminate amount of distortion remains, which systematically understates the effectiveness of Head Start.

ETS Longitudinal Study

The Educational Testing Service Longitudinal Study of Young Children and Their First School Experiences was a research effort supported by ACYF to gather data on children with Head Start and other preschool exposure. The study addressed two questions: First, what are the components of early education that facilitate or interfere with the cognitive, personal and social development of disadvantaged children? Second, what are the environmental and background variables that moderate these effects, and how do these moderators produce these influences? The study focused on children in three communities in Alabama, Oregon and New Jersey.

This project is of limited importance for policy purposes because preschool treatment is confounded with site, socioeconomic status and race. However, the ETS-Head Start effort has produced a wealth of research studies. An example of an important insight of this research, from the perspective of assessing Head Start outcomes, is an in-depth series of case studies of 186 black children (Shipman, et al., 1976). This special analysis highlighted

characteristics and experiences of very high and very low achievers in third grade performance on basic school skills of math and reading. Determination of high or low achievement was made relative to predicted performance at age four. The impact of Head Start on school achievement was evident on school promotion. A higher proportion of black Head Start-eligible children who had not attended Head Start were retained in first or second grade.

George Washington University Head Start Review

In 1977, the Social Research Group of George Washington University produced a report entitled: "A Review of Head Start Research Since 1969" (Mann, et al., 1977). The authors reviewed over 50 major Head Start studies, including approximately 30 dissertations. Positive outcomes were reported for children, the family and the community. The principal findings regarding children can be summarized as follows:

- Head Start participants performed equal to or better than their peers when they began regular school. There were fewer grade retentions and special class placements. Children's later reading achievement was improved.

- No one program approach seemed to be better than another in stimulating cognitive gains.

- Significant improvement was reported on standardized tests of intelligence and general ability.

- A high degree of parent participation was associated with a positive impact on children's self-concept.

- Head Start positively contributed to the development of socially mature behavior and facilitated child socialization.

- Parent participation programs contributed to child socialization and parent-child interaction.

The studies analyzed by the George Washington University research team differed greatly in size, experimental design, measures utilized, and evaluation methodology. No studies were included that the researchers believed would not yield meaningful interpretations of program impact. Many of the studies conformed to high standards of methodological rigor, including random assignment. It is noteworthy that none of the studies confirmed the disappointing conclusions of the Westinghouse study No studies reported developmental losses for poor children compared to children of comparable characteristics who did not attend preschool. The results were consistently positive, although differing in absolute magnitude from study to study. The positive response to this report is believed to have been a factor in President Carter's support for the 1978 funding increase for Head Start.

Head Start Transition Study

The Head Start Transition Study was carried out by Abt Associates, Inc., during the spring of 1977 to assess the performance of children who had attended Head Start the previous spring and who were in kindergarten or first grade (Royster, et al., 1978). The study design was a post-test only at the completion of the child's first year in public school. Head Start communities were selected in a stratified random sampling plan, with the exclusion of smaller programs and sites with a high enrollment of children with a primary language other than English. So many considerations tempered site selection including inclement weather, difficulties in obtaining permission of parents and schools, and purposive selection criteria that in the end the final selection was conceded by the researchers to be non-random. There was such a poor match with the comparison group among white families that Abt decided not to analyze those data (the mean family income for Head Start families was $3,900 lower than for the children who did not attend preschool). Even in the black analytic sample, mean income in the Head Start group was $1,400 lower. There were also differences on age of children and mother education in the analytic sample.

Although this study's methodological faults make the findings suspect (with a strong suggestion of bias against the Head Start group) the results are favorable to Head Start. Head Start children had higher test scores. Head Start children in single parent families and those in families with incomes below $5,200 tended to make the largest gains in school achievement. These results support the hypothesis that Head Start may be particularly helpful to black children in high risk families. As in numerous other studies, Head Start children from the Southeast region performed well relative to other regions of the country. It should be pointed out, however, that region is confounded, not only with race, but with the child's age and whether the child goes directly from Head Start to first grade. At the time of this study, only 34 percent of Head Start graduates entered kindergarten in the southeastern states.

The transition study's design shed virtually no light on what features of the preschool experience accounted for Head Start's success in improving the school achievement of black children during their first year in public school. Nor did the study contribute to an understanding of what processes in the family or the public school classroom may have enhanced or attenuated the Head Start effect. A secondary analysis of the transition study data carried out by researchers at Virginia Polytechnic Institute explored some of these issues and took a comparative look at the findings for white and black children (Cline, et al., 1980). Although of interest, the results of the reanalysis do not lend themselves to summary treatment in this report.

Head Start Synthesis Project

The Head Start Synthesis Project was one of the most comprehensive assessments of Head Start's impact (Collins and Deloria, 1983; McKey, et al., 1985). Formally termed the Head Start Evaluation, Synthesis and Utilization Project, the effort involved the compilation of over 1,600 documents related to Head Start. CSR, under contract to ACYF, analyzed and synthesized 210 reports of research on the effects of local Head Start programs. The project was

noteworthy in its attempt to take into account all Head Start research, published and unpublished. Meta-analysis was the principal statistical technique used by the researchers to produce numerical estimates of Head Start's effects.

(Meta-analysis is a statistical procedure that has grown popular over the past decade as a more systematic approach than the traditional literature review to complex analyses of program effectiveness (Collins, 1984; Light and Pillemer, 1984). Meta-analysis applies scientific principles and statistical techniques to analyze findings across many research reports in a similar fashion to a data analyst exploring results within a single study. The basic procedure in meta-analysis involves converting the outcomes from each study to a common metric, an effect size. An effect size is generally calculated by subtracting the mean score for the no treatment group from the mean score for the treatment group and dividing by the standard deviation of the no treatment group. In the Head Start Synthesis Project, a positive effect size meant that the average score of the Head Start group was larger than the non-Head Start group. In other words, Head Start children experienced greater benefits. An effect size of 0.25 or greater was considered to be educationally meaningful in the study).

Benefits of Head Start identified by CSR included the following:

- Head Start has immediate positive effects on children's cognitive ability.

- Gains on school achievement and school readiness tests persist for one year after Head Start. By the end of the second year, no educationally meaningful differences were found on any of the measures of cognitive development.

- Head Start improves the long-term school success of children. Head Start children are less likely to be held back in school or to be assigned to special education classes.

- Head Start has immediate positive effects on children's self-esteem, achievement motivation and social behavior. Some gains persist for two years after the Head Start experience.

- Head Start produces meaningful improvements in physical health, motor coordination and development. Head Start children experience a level of health comparable to more advantaged children. The largest gains in motor development are for children with physical handicaps and those with developmental delays.

- Head Start children tend to have higher protein, calorie and essential nutrient intake and tend to be healthier according to biochemical indices. They receive better dental care, have fewer cavities and practice better dental hygiene.

- Handicapped children benefit from Head Start participation.

- Favorable Head Start impact on families and communities was reported, using both meta-analysis and narrative literature reviews.

The report noted that the average impact of Head Start was greater in studies carried out after 1970, and concluded: "This suggests that Head Start program changes made in the 1970s...may be having positive effects on cognitive performance. It also suggests that new impact research is needed to examine the effects of these program improvements on children."

Like other Head Start research, the Head Start Synthesis Project has been criticized for its methodology. The use of meta-analysis has sparked particular controversy. Without passing judgment on the merits of this debate, it is probably fair to view the report as a minimalist view of Head Start's impact. The program may be doing better than this report card suggests, particularly with regard to eliciting long-term benefits; there is no evidence to suggest that it is not doing at least this well.

Comparative Curricular Models

Head Start Planned Variation (HSPV) was implemented from 1969-1972 to test the concept of alternative curricula focused on the preschool child. HSPV sponsors were selected by the Office of Child Development to parallel a cooperative Follow Through program effort administered by the Office of Education (now the U. S. Department of Education). Notwithstanding serious design problems, Mike Smith (1974) concluded that the Head Start experience substantially increased children's test scores on five outcome measures. On four of the five measures, the Head Start experience doubled or tripled children's gain scores over and above the rate of growth attributable to maturation (a potential for bias in the regression techniques used by Smith warrants cautious interpretation).

There were few strong differences in the effectiveness of the HSPV models. Smith (1974) concluded that there were "no overall winners or losers." The implication of test results on the Preschool Inventory (PSI), the most psychometrically reliable of the instruments, was that all Head Start models tested imparted the skills believed by teachers to be essential for school readiness. While there was controversy at the time over whether single models were winning the curricular race, there is a growing consensus in the early childhood community supporting Smith's interpretation that a variety of child development programs are capable of eliciting favorable child outcomes. The search for one "best model" tends to be met with considerable skepticism today.

Home Start

The Home Start experiment operated from 1972-1975 (Deloria, et al., 1975; Love, et al., 1976). Home Start is a Head Start demonstration project designed to enhance the mother's (and father's) skills in facilitating the learning and development of their own children. Home Start, like center-based Head Start, has the goal of fostering the child's overall development (i. e., social competence) and strengthening the family. The intervention employed a weekly home visitor. The home visitor's strategy was to work with the child primarily as a way of modeling behavior for the mother. The major focus was to get the mother to work directly with her child. Monthly group activities supplemented the home visits. The full range of Head Start comprehensive

services was provided (except for the absence of a classroom experience and with substantial modification in the provision of nutritional services).

The Home Start design involved random assignment. After seven months, the Home Start children were significantly above the no treatment controls on several cognitive and school readiness tests, including the PSI. In addition to the intervention by the mothers, home visitor workload showed a direct relationship with child outcomes. Home visitors with more than 13 families made home visits less frequently, which was associated with a decline in children's school readiness and language development. This latter finding was cited by the Head Start Bureau as germane to its recent Federal Register recommendations for modifying the performance standards for home-based programs.

Home Start proved to be equally as effective as center-based Head Start. At seven months, Home Start children surpassed a non-randomly assigned comparison group of participants in regular classrooms on the PSI; these differences disappeared at later testings and there were no differences on other measures.

In 1979, a study assessed the long-term impact of Home Start (Nauta, et al., 1979; Collins, 1980). There was no sign of washout effects in the school achievement of Home Start children from kindergarten through first and second grade. Home Start students scored well relative to national norms. By second grade, Home Start children were ranked at the 49th percentile for math and the 56th percentile for reading achievement. Considering the extremely low socioeconomic status of Home Start families, the children's school achievement would have been expected to have been considerably worse in the absence of the intervention program. While these results are encouraging, it should be acknowledged that the long-term study was an afterthought and did not reflect the strong methodological design of the original Home Start experiment. It lacked random assignment and was plagued by heavy attrition.

On balance, the evidence is clear that Home Start produces favorable effects on the learning and development of poor and minority children, and the possibility exists that these gains may be lasting and cumulative. The outcomes for at least some groups of children and families are comparable to those produced in center-based Head Start.

Studies of Handicapped Children in Head Start

A two-year study of the process of mainstreaming handicapped children in Head Start was carried out in 1976-1977 (Vogel, et al., 1978). The Head Start sample consisted of 391 children in 55 Head Start programs, randomly selected to represent all programs nationwide. A comparison group of handicapped children in non-Head Start programs was selected from the same communities. A second comparison group consisted of largely unserved preschool handicapped children. This was the first large scale study of preschool children in a mainstream setting. Child testing was supplemented by obse vation in classroom settings and by parent and teacher ratings of the child's performance. The profiles of child performance were quite consistent across the measurement modalities.

Children in both Head Start and non-Head Start programs manifested developmental gains relative to the unserved group. The gains were particularly striking for speech impaired children. Children in preschool programs manifested gains of six months in communication age relative to children not in organized service programs. The children in programs evidenced important gains in physical, self-help and academic skills. For other handicapping conditions, developmental benefits for program children were generally positive, albeit weak and overall not statistically significant.

After adjusting for pre-existing sample differences, developmental advances for Head Start children were often larger than for children in non-Head Start programs, (although not always at a statistically significant level). Children diagnosed as mentally retarded, health or developmentally impaired, learning disabled and seriously emotionally disturbed most often benefited from a Head Start exposure. Across all handicapping conditions, Head Start children consistently exhibited greater gains in academic and self-help skills. Behaviors of handicapped children in Head Start more closely resembled those of non-handicapped children than did behaviors of handicapped children in non-Head Start programs. This may have been a product of their mainstreaming experiences in Head Start (mainstreaming was much less common in the other programs); an alternative explanation is that the children in Head Start were less severely impaired from the outset.

Several Head Start program variables were associated with positive outcomes. These included parent-child interactions in the home, teacher experience and training in working with handicapped children, smaller class sizes, low handicapped child to non-handicapped child ratios, and the percentage of classroom time spent in a mainstream context. Despite the study's methodological pitfalls, it made important contributions to research strategies for assessing outcomes for handicapped children in a mainstream setting and shed additional light on Head Start benefits for children experiencing disabilities.

Omissions

This overview is deliberately incomplete. Head Start R&D projects have been largely omitted, except when, like Home Start, they shed direct relevance on an evaluation of Head Start operations and programs services. Head Start studies focused on the prenatal period to age three have been left out. No attention has been paid to the essential body of literature and experimentation focused on linguistic and multicultural program strategies to respond to racial-ethnic differences and the special needs of the child whose dominant language is other than English. Single site longitudinal studies have not been discussed, although they are of considerable importance, particularly in an effort to gain a better perspective on Head Start's long-term impact (for example, see Collins, 1981; Copple, et al., 1987; McNamara, 1988). Evaluations of particular Head Start program components have not been cited, although several are of considerable interest (for example, see Fosburg, et al., 1984). The rich body of data collected through operationally-focused Head Start data collection systems has not been mentioned. These data sources include the Head Start Program Information Report (PIR), the Head Start Cost Analysis System

(HSCOST) and procedures for monitoring local programs through on-site multidisciplinary teams that assess compliance with the performance standards.

III. OTHER RESEARCH

Research-oriented Preschool Programs

Heightened policy interest in early intervention programs has been sparked by emerging evidence of lasting effects of preschool programs. Four major analyses will be considered in this part. The first is the project of the Consortium for Longitudinal Studies (Lazar and Darlington, 1982). The second is the series of reports of the long-term effects of the Perry Preschool Program (Schweinhart and Weikart, 1980; Berrueta-Clement, et al., 1984). The third is of economically disadvantaged children in the Family Development Research Program, otherwise known as the Syracuse Study and the fourth is the longitudinal data from the Abecedarian project conducted at the University of North Carolina, Chapel Hill .

1. The Consortium for Longitudinal Studies. The Consortium was formed to combine the projects of twelve researchers who had conducted preschool programs in the 1960s in a systematic longitudinal search for lasting effects. The original data were pooled and a follow-up study using common measures was conducted during 1976-77. The programs were implemented in eleven communities nationwide. Program design and curricula varied, including home visits and center-based programs, as well as combinations of home and center interventions. Program participants were poor and minority families, with a heavy representation of black families.

The children ranged in age from three months to five years at the time of program entry. At the time of the Consortium's study, they ranged in age from 9 through 19 years. The original studies had the advantage of generally strong research designs, many with random assignment. Care was taken in the follow-up design, and little attrition was experienced.

Sustained effects of preschool participation on children's functioning were discovered on several indicators of real world importance (long-term molar measures, to use Zigler's and Trickett's social competence terminology). Children who participated in preschool programs were more likely to succeed in school as measured by staying on grade level with their peers and avoiding inappropriate placement in special education. A median of 24 percent of the children in the preschool programs failed to meet school standards compared with 45 percent in the control group (note that these are extremely high risk populations). Intelligence test gains had faded three years after the program had ended. However, the preschool participants experienced lasting advantages on some academic achievement tests, particularly mathematics (by grade six, differences had disappeared in both math and reading). In addition to the cognitive outcomes, there were signs of favorable impacts on the child's self-concept, parental aspirations for the child's education and the family's achievement orientation.

2. The Perry Preschool Program. The Perry Preschool Program, one of the programs in the Consortium study, has received even greater attention for the

staying power of its initial gains, the social importance of lasting effects, and for the most completely documented evidence of the cost-effectiveness of early childhood programs (Weber, et al., 1978). The Perry project has followed the children beyond age 19 and continues to follow them into their twenties. Powerful long-term benefits have been identified. Program children scored higher than youngsters who had not attended preschool on reading, arithmetic and language achievement tests. The preschool participants avoided placement in special education; by the end of high school, only 19 percent of the former preschool participants had been tracked in special education while 39 percent of the control group had a special education experience. There were reductions in juvenile crime and arrests and diminished rates of teenage pregnancy. High school graduates increased from 49 to 67 percent. Employment rates increased from 32 to 50 percent (Weikart, 1989).

Barnett and Escobar (1987) examined the economic evidence for the Perry Preschool Project and confirmed that "preschool attendees and taxpayers (who paid for the program) gained more than they lost." They also studied the economic benefits of the Consortium study and several other early intervention programs and concluded: "...programs begun anytime during infancy or early childhood can produce significant long-term benefits for disadvantaged children. The evidence for persistent improvement in educational achievement, placement, and attainment is particularly strong." The economists noted that only the Perry Preschool Project studied a wide range of non-academic outcomes.

3. The Syracuse Study. A third study for economically disadvantaged young children and their families was the Family Development Research Program, also known as the Syracuse Study. The program provided comprehensive services to 108 families beginning prenatally and continuing until children reached elementary school age. The goal was to improve the "well being" of the children by providing five continuous years of quality day care which also included a host of supportive, comprehensive services. The program saw parents as the primary intervention target, thus attempting to maximize family functioning. This portion of the program included weekly home visits by Child Development Trainers.

The longitudinal results at ten years show that the intervention had a positive impact on school functioning, attendance rates, and self-perceptions for girls. Effects on families were positive in that program parents were proud of their children's attitudes and behaviors and the quality of their family life. Program children felt more positively about themselves and their future school plans, and reported more active strategies for handling problems than did the control children. Striking differences were found between program and control children related to juvenile delinquency. Program children were less likely to have been processed as probation cases, and the severity of the offenses, degree of chronicity and cost of cases were much higher in the control group than for the program children. Like the Perry Preschool Program, the Syracuse study shows long-term benefits to children and families which result from high quality comprehensive early childhood programs (Lally et al, 1987).

4. The Abecedarian Project. A fourth project for young children at risk for developmental retardation and school failure was begun in 1971 at the

University of North Carolina, Chapel Hill. The Abedecarian Project included 109 families with 111 children and used random assignment to a preschool treatment group and later to the school-age treatment group and to the control groups. Program children attended the program from infancy on a full-day, full-year basis. At the kindergarten level a home/school resource teacher was provided to each child and family. The twice-a-month home visits included an individual home curriculum with an emphasis on reading and math skills. Positive program effects were seen as stairstep effects, i.e. proportional to the level of the intervention. The preschool intervention had a positive effect on children's intellectual development and academic achievement which persisted up to 78 months, and showed an effect on retention in grade. The study concluded that systematic early education can reduce the incidence of underachievement and delayed intellectual development (Ramey and Campbell, 1987).

Implications for Head Start

Commentators have pointed to the findings of these studies as evidence of lasting benefits of Head Start. This is a widely shared misconception. What is correct is that both the types of curricular interventions and the populations served are found within the mainstream Head Start program. These research-oriented projects demonstrate convincingly that the educational attainments and life opportunities of low income and minority children can be dramatically improved by interventions parallel to those carried out in the day-to-day Head Start programs. The findings illustrate what lasting benefits it is *possible* to elicit in regular Head Start. Hints of these long-term outcomes have been discerned in Head Start-specific research; however irrefutable evidence of lasting gains of comparable magnitude has not been found. It should be pointed out, however, that few Head Start research and evaluation projects have focused on lasting benefits and virtually no longitudinal studies of strong design have been carried out on regular Head Start programs.

Other Child Care Research

Child development research findings from a wide spectrum of programs have begun to converge on Head Start in terms of potential insights regarding the range of relevant program designs, variables and practices associated with benefits for high risk children and their families as well as program variables related to quality programs. The following discussion cites illustrations of this growing body of research evidence.

1. The National Day Care Study. The National Day Care Study (NDCS) collected data on child care in the United States during the period 1974-1978, and focused on an exploration of quality and cost in center-based day care for preschool children. The study found that quality is associated primarily with two relatively low cost ingredients -- smaller groups of children and caregivers having child-specific education and training (Ruopp et al., 1979). The NDCS has exerted considerable policy influence on the early childhood field, most recently in terms of proposals to modify the Head Start performance standards discussed above and in State child care licensing and regulatory actions (Collins, 1983).

2. Studies of program characteristics and adult-child interactions. Initially research examined comparisons between different forms of care, e. g., home care vs. center care vs. family day care (Carew, 1980; Cummings, 1980; Rubenstein and Howes, 1979; Schwartz et al., 1974). More recent studies, however, have examined qualitative differences within particular forms of care (Clarke-Stewart and Gruber, 1984; Howes & Rubenstein, 1985). Center characteristics such as group size, child-adult ratio, age of entry, and features of the physical setting as well as program structure have been the focus. Results of these studies have shown that structural features such as group size and child-staff ratios do, in fact, have an impact on children's development.

We also have a research base that provides evidence that certain caregiver behaviors have consequences for children's social, emotional, intellectual, and language development (Anderson, 1981; Carew, 1980; Golden et al., 1978; Howes & Olenick, 1985; McCartney, 1984; Phillips et al., 1987; Ruopp et al., 1979). These studies have examined a wide array of caregiver behaviors during interactions with children and have identified those behaviors associated with positive child development outcomes. They have found that three categories of caregiver behavior--cognitive-language stimulation, adult involvement, and socioemotional stimulation-- are associated with somewhat different, but positive, types of child outcomes. Caregivers who are responsive to children's needs, who are encouraging of their exploration and play, who talk to children and expand their vocabulary, and who use positive control techniques, promote children's intellectual, language and social development.

The importance of interaction is further bolstered by a study which assessed the reliability and construct validity of the Early Childhood Classroom Observation rating scale which is used to accredit programs by the National Academy of Early Childhood Programs. Bredekamp (1986) found that the most discriminating items for quality programs were those that related to preschool curriculum and staff-child interactions.

In summary, the child care research has found that both structural features as well as adult-child interactions affect children's later development.

Clarke-Stewart (1987) explored consistencies across five child care studies in five areas: 1) the child care setting; 2) children's interactive experiences; 3) the overall program; 4) policy-regulatable variables; and 5) family background variables. Among the highlights of the findings were the following:

- children in licensed center-based programs did better than children in homes (either in their own homes with mother or caregiver or in unlicensed family day care homes);

- the amount of caregiver behavior that is verbal, stimulating, educational, and not demeaning to the child (controlling, helping, or holding) positively predicted child development;

- children who were left to spend their time in "aimless" play together did not benefit to the same degree as children in well planned, developmentally oriented programs;

- global indices of program quality were inconsistent predictors of outcomes and may have masked effects of different program components for different children;

- simple interpretations of child-adult ratios needed to be tempered by an understanding of the limits beyond which a low ratio is bad and the outcome for which a high ratio is good;

- caregiver education and training was one of the more consistent of the caregiver variables, but attention must be paid to the specific kinds of caregiver training in child development, not just the number of courses taken. The nature of the professional experience in general and duration of time working in the specific program also deserve attention.

- there should be an adequate child-adult ratio and a reasonable group size (the relationship of group size to child development was positive, but "surprisingly weak," and varied depending on the outcome measured); and

- children's development is directly linked to a variety of family variables including family structure, SES, home stimulation and parental values.

3. Child Care Staffing Study. A recent study of the relationship between teacher/caregiver status and the quality of child care has concluded that children attending lower-quality centers with more teacher turnover were less competent in language and social development. The study considered teacher turnover rates, training and education levels and wages. Teacher training and formal education were related to better child care. Overall, the study concluded that the quality of present services provided by many centers was barely adequate (Whitebook et al., 1989).

4. Early intervention synthesis. Lisbeth Schorr spent several years examining research projects and operating projects that offered promise of serving as workable early intervention programs to provide solutions to "rotten outcomes" for adolescents (Schorr, 1988). She tells the story of literally dozens of early intervention programs, spanning many disciplines in addition to preschool education, in which there is positive evidence of long-term outcomes. While few of the projects she describes equal the scientific rigor of the projects mentioned above,or have they been comparably scrupulous in documenting the cost-benefit impacts, the cumulative weight of the evidence is compelling.

In addition to Head Start, child care and early childhood education, Schorr identifies promising program strategies with the following cost-effectiveness payoffs:

- prenatal care reduces low birthweight;

- family support and social services offset the need for out-of-home placement of children in child welfare services;

- programs to reduce teenage parenthood cut the price tag for public assistance; and

- home visits during pregnancy and follow up nursing visits after birth reduce unemployment, call for less public assistance and reduce child abuse and neglect.

IV. POSSIBLE EXPLANATORY MODELS

The evidence is compelling that well designed and carefully implemented early intervention programs demonstrate positive short-term and long-term outcomes of social and economic significance. These programs are seen as a possible proving ground for the principles underlying Head Start. What is less clear is the mechanism or mechanisms by which these benefits are produced or elicited. The tendency of most researchers and policy analysts is to avoid the issue of possible explanatory models related to the child, family and society that might account for the observed outcomes. A common leap is from a recital of child and family benefits to a "prescription" for action: expanded Head Start; universal child care; public education for all four-year-olds; or whatever is the favored societal response. A few commentators have pointed out that more subtle interpretation of the research findings may be called for (Haskins, 1989; Woodhead, 1988; Zigler, 1987).

Explanatory models to account for the findings tend to center on the child, the family, or society or they may involve a transactional or ecological interpretation that combines all of these elements in an interactive fashion.

Interpretations focused on the child were the most common in Head Start's start-up period. The child's cognitive functioning and IQ were seen by some as exceedingly plastic in the formative preschool years and modest interventions were believed capable of quite dramatic impacts on subsequent school success. This was the genesis of the "magic bullet" or "innoculation" metaphor in which the Head Start experience was likened to immunizations administered by a pediatrician. It was via this route that exaggerated expectations came to be invested in a 6-8 week summer program exposure. The Westinghouse study is the classic test of this direct effects cognitive hypothesis.

Simplistic interpretations that "preschool makes kids smarter" began to be abandoned in the seventies as study after study demonstrated that initial IQ gains tended to fade within a few years. Researchers turned to more subtle notions in the cognitive arena, including a search for sleeper effects. Perhaps IQ gains are no longer measurable, but permanent changes in intellectual processes lie dormant awaiting maturational change or environmental triggering to reawaken them so they can manifest their effects on school achievement and social functioning.

An alternate, and somewhat more plausible, interpretation is that preschool programs have a short-lived booster effect on cognitive functioning. This initial performance advantage then gets mediated by the response of teachers and schools to translate into lasting performance gains. Teachers might expect more of the children and they manifest a Pygmalion response. Perhaps merely avoiding initial tracking into special education, labelling or placement in lower ability groups in kindergarten or first grade is enough to get the child's footing, however precariously, on the escalator to better achievement.

Over time, researchers began to pay attention to social competence and displayed a greater interest in outcomes that reflect the "whole child." This was accompanied by speculation that children's self-image and other socioemotional attributes combine with cognitive functioning to produce the observed educational outcomes. As the children do well in school, they feel better about themselves, which triggers optimal achievement. These behavioral and performance advantages produce a more resilient child who scores well on real world indices of keeping on grade level with his or her peers and avoiding special education even after starting to lose ground in the arena of test scores. The Head Start child is thereby able to break through the vicious cycle that traps the typical disadvantaged child, one that results in a downward spiral leading to school drop out and worse.

Other ways that the child's overall developmental profile might interact with the observed performance in school and later life settings have been posited. Perhaps improved nutrition, health, motor development or other aspects of physical development are implicated in enhanced performance.

In recent years, increasing speculation has focused on parents and the family as the mediating variables that "explain" how a comparatively short-lived and modest influence in the early years may translate into long-term changes in prospects for adolescence and young adulthood. A variety of interpretations are possible including: parental pride in the child's accomplishments and thus a difference in parental expectations (a family variant of the Pygmalion effect); parent-child interaction around educational and developmental experiences; socioeconomic benefits reducing family stress; social support systems and services buttressing innate family capabilities; and parent participation in various program aspects leading to greater adult competence and in turn to stronger role models for children.

The work of Urie Bronfenbrenner on child development and the ecology of human development has inspired a variety of transactional models that combine many of the above influences (Bronfenbrenner, 1979).

Given the present state-of-the-art, it is less important to choose among direct effects, gatekeeper, ecological and other models, than it is to keep in mind that one or, more likely, several of these processes are probably at work. The current scientific evidence to prove exactly which explanatory models offer the best bets is sketchy . Moreover, the evidence is badly skewed by the limitations of the available battery of evaluation instruments which has influenced the tendency to study what is easy to measure rather than what is important to measure. The implication is that research and evaluation design for Head Start should be as robust as possible to allow for analyses that would test the validity of alternate model hypotheses.

V. DEMOGRAPHIC AND SOCIETAL CONTEXT

Research evidence of the lasting benefits of preschool programs is only one of the factors that has focused increased attention on the expansion of Head Start and other child care and early childhood programs. Changing demographic, economic and social factors have exerted even more decisive influences (Collins and Magid, 1989).

Dramatic changes have transformed the family and the workplace. The image of the so-called typical American family has been altered by the increased participation of parents, primarily women with young children, in the work force. More than 70 percent of women aged 25 to 34 are in the labor force, double the ratio a generation earlier. Almost two-thirds of the new entrants into the labor force between now and the year 2000 will be female, a net labor force growth of 13.2 million females. This heightened labor force involvement is occurring among women of all ages and racial-ethnic groups. In recent years, white, middle class women becoming the second wage earner in the neo-traditional family, have been setting the pace and will continue to do so through at least 1995 based upon current demographics. By the end of the century, Hispanic and black women will be the trend setters entering the labor force.

A distinguishing feature of women's heightened labor force involvement is the increase in the number of children with employed mothers. The changes are striking in families with children under age six and even more so among families with infants and toddlers. The proportion of all children under eighteen with mothers in the work force is expected to rise from 58 percent in 1985 to 73 percent in 1995. For children under age six, the percentage is projected to rise from 49 to 65 during the same decade. Not only are the relative increases staggering on top of the dramatic growth since 1970, the absolute numbers are even more impressive. The numbers of children under age six with working mothers will increase over four million during the decade (from 10.6 to 14.6 million).

The recent passage of welfare reform legislation at State and Federal levels can best be understood against the backdrop of these social and demographic developments and the related continued economic difficulties of low income and minority families. In 1986, 13.6 percent of Americans fell below the official poverty line. A family of four was counted as poor if cash income was under $11,611. The Census Bureau recently completed a special study which looked at the extent to which Head Start and other safety net programs may have helped to protect the poor. They found that, taking into account such noncash programs as Medicare, Medicaid, food stamps and housing subsidies, 10.3 percent still fell below the poverty line.

The gap between rich and poor is the greatest it has been since the United States began keeping comparative statistics. The richest 40 percent of all families have the largest share of family income and the poorest 40 percent the smallest of any year since World War II. In the past generation, children have replaced the elderly as the group the worst impacted by poverty. Forty percent of all poor are children. Twenty percent of all children are poor. Minority

children have fared twice as badly. The poverty rate for black children is 45 percent, for Hispanic children, 39 percent.

VI. THE POLICY CONTEXT

Head Start faces a radically altered policy context in the decade of the Nineties. Demographic shifts, continued acceleration of the labor force participation of women and changes in family structure have elicited a growing response from decisionmakers. Preschool education and child care programs have expanded at state and local levels. Protracted social and economic pressures stemming from poverty, homelessness, drugs, discrimination and educational disadvantage have focused attention on policy and program strategies to counter the adverse impacts of these forces on poor and minority children and their families.

The combination of strong and sustained child care demand on the part of middle class women in the labor force, coupled with child poverty and projected increased future workforce participation on the part of minority women, heightens the policy attention to early childhood education and child care in general and Head Start in particular. The arguments for human capital investment combine in a unique fashion. Societal investments in early childhood programs offer the potential for immediate payoff in increased productivity through facilitating the labor force participation of women and longer term contributions to gross national product through the lasting benefits to children. Head Start offers this human capital potential plus an equity dividend in the form of directing resources to the poor and minorities who have been the most adversely impacted through social and economic developments over the past decade.

These arguments have not been lost on Governors and State legislators who have set the pace in expanding resources to early intervention programs. ACYF has supported analyses of the expansion of State-funded prekindergarten programs (Goodman and Brady, 1988). In 1988, 28 States projected a total preschool program expenditure of almost $226 million. Eight States had Head Start-only enactments that provided supplemental funds exclusively to Head Start programs. Twenty five states had general enactments in which funding went to school districts only or to school districts and to other nonprofit agencies.

In addition to actions at the State level, many cities and counties have mounted their own preschool programs, sometimes with pivotal involvement of Head Start. New York City's Project Giant Step is an important example (Cohen, et al., 1986).

The public schools have been the focus of a major stream of preschool program activity explicitly directed at early childhood education. The Public School Early Childhood Study was conducted by Bank Street College and Wellesley College Center for Research on Women (Marx and Seligson, 1988). That study identified 26 States that had early childhood programs and three States with existing prekindergarten programs that had passed legislation for additional programs. The study identified the limited availability of prekindergarten experiences for non-handicapped, low income children as a major stimulus for

State action. Such children were less than half as likely as higher income children to receive a prekindergarten experience despite Federal funding for Head Start, funding through the Social Services Block Grant (Title XX) and, in some States, through Chapter I.

The National Association of State Directors of Special Education surveyed all States to determine the status of plans for providing services to preschool handicapped children under the new legislation (Walsh and McKenna, 1988). Coordination issues with Head Start were in the category of "challenges" identified by five or fewer States -- a tribute to the extent of coordination that has been accomplished since the advent of Head Start's mandate in 1972 to mainstream handicapped children and the effective work by Resource Access Projects to link Head Start programs with public school agencies.

This ferment of early childhood activity at the State level has triggered a variety of advocacy organizations to propose major initiatives based on sound educational and developmental principles. The report of a task force of the National Association of State Boards of Education typifies the best of this genre (Schultz, et al., 1988). That report identified characteristics of high quality early childhood programs; called for the development of early childhood units in the public schools to serve children ages 4-8 and their parents; and recommended partnerships between public schools and Head Start and other early childhood programs. NASBE endorsed extending to all children and families, particularly to at-risk children, Head Start-type comprehensive early childhood services, including health screening, medical and dental treatment and follow-up, health education, mental health and nutrition services and a wide range of social services to families.

The U. S. Department of Education has been attuned to the quickened pace of early intervention activity. This prompted the Department to sponsor the "National Policy Conference on Early Childhood Issues: Policy Options in Support of Children and Families," in Washington, DC (Kinney, et al., 1988). The Department has also launched a number of studies focused on child care and early education. Three studies are particularly noteworthy. First is a study of the transition from Head Start to the public schools, exploring retention of the benefits of early childhood education for disadvantaged children, being conducted by RMC Research Corporation. Second is a project to profile child care settings being conducted by Mathematica Policy Research in cooperation with the Urban Institute. The Urban Institute is collaborating with NAEYC in a related child care consumer survey under funding support from ACYF. A third study will focus on observations of preschool education and care by describing programs and environments, and recording interactions between children and teachers and among peers.

Notwithstanding the importance of these activities at the State and Federal levels, it should be understood that the most significant developments in the child care delivery system have occurred largely outside the formal policy streams. Licensed child care center capacity has roughly doubled in the past decade, with nearly 40,000 centers in operation, having a capacity to serve 2.1 million children. The supply of regulated family day care homes has also increased, with about 435,000 children in licensed homes. Since more than

nine out of ten homes are unlicensed, the involvement of children in family day care is many times that number.

The child care tax credit is a Federal subsidy undergirding at least part of the expansion of center-based and family day care homes. Utilization of the Child and Dependent Care Tax Credit rose to $3.4 billion in 1986. Parents, particularly in middle and upper income families, have been enthusiastic about this source of funding. The number claiming the credit rose from 2.9 million in 1977 to 8.4 million in 1985. The average tax saving per family was $371 in 1985, with an estimated 44 percent of working mothers using the credit (Robins, 1988).

While preschool children have been the primary focus of policy attention, some intensification of program activity has been experienced with respect to infants and toddlers. Congress enacted the Comprehensive Child Development Act of 1988 to establish a program that addresses the period from birth to entrance into elementary school. Depending on how the demonstration effort evolves, CCDP may come to influence design decisions for the Head Start program of the future.

It is no longer realistic, if it ever was, to conceive Head Start program strategy and research and evaluation design in isolation from the total societal and policy context. At the state and community level, policy makers and program planners are forced to confront emerging coordination issues among Head Start and the public schools, other child care providers and family-focused programs, such as welfare reform, attempting to concentrate services on low income and minority families.

VII. SUMMARY

The design of strategic evaluation options for Head Start must take into account a paradigm shift in early childhood research that has occurred over the past generation. The "black box" evaluation model was the dominant paradigm in the early years, and the Westinghouse study's approach of examining "the program as a whole" was the way most evaluations of child development and early childhood education were carried out at that time. This was the *first wave* in which researchers were preoccupied with the question of whether intervention programs harm or help the disadvantaged child and by how much. This was superseded by a *second wave* in which the pivotal question was which child care model is superior. This was the horse race period in which opposing Head Start (or Follow Through) curricula were put through their paces on the preschool track in a competition for "best bets." Today, innovative researchers are setting the pace in a *third wave* paradigm which explores ingredients and indicators of program quality. This third wave includes an emphasis on individualization of services to children and families based on unique needs and characteristics, attention to variations in program services, the role of parents, teacher characteristics and behaviors and use of classroom and home observational techniques.

There are several reasons for this paradigm shift. First, the "black box" model was not particularly fruitful in producing meaningful insights into major program and policy questions. Second, evaluators and policymakers have grown

cautious of the "one shot study" syndrome in which all the answers were expected to come from a single evaluation; a lot of people were out on a limb over the Westinghouse findings for several years before the weight of evidence on the other side finally pushed that study into obscurity. Third, the accepted interpretation of the findings of the Consortium study and other early intervention programs is that the record is now clear: early intervention programs can produce lasting gains for poor and minority children. Fourth, results of Head Start Planned Variation and other research have led early educators to conclude with Smith that there are no overall winners or losers in the curricular race. A consensus interpretation is that any well designed and well implemented curriculum, grounded in child development theory and practice, and carried out by qualified staff, can produce meaningful gains for high risk children. Fifth, promising insights into program improvement are beginning to emerge from fine grained analyses of program quality such as were pioneered by Head Start's E&R Centers during the start-up years and that have been publicized by Phillips and her fellow researchers and generally through a spate of NAEYC publications.

There is a wealth of research and evaluation data on Head Start and other early intervention programs. Much of this information has not been tapped in any systematic fashion. In addition, several dozen studies of nationwide significance are ongoing (see separate technical paper for a preliminary listing of projects, Collins and Kinney, 1989). Past and ongoing studies are a fertile source of issues, questions, variables, methodology and measures in the design of future Head Start research and evaluation options. This body of knowledge and emerging insights provides a rich repertoire for exploring the ingredients and indicators of program quality.

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